UNITED STATES PATENT AND TRADEMARK OFFICE

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 March 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   This action is issued in response to applicant's amendment filed on March 10,

2006.

2.   Claims 1-25 are presented. No claims were added and no claims were cancelled.

3.   Claims 1-25 are pending.

4.   Applicant's arguments filed March 10, 2006, have been fully considered but they

are not persuasive.

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   **Claims 1-3,5-7,9-13,15, and 17-20 are rejected under 35 U.S.C. 102(b) as**

being anticipated by Tang (US Patent No. 5,454,102).

Regarding Claim 1, Tang discloses a method comprising:

storing data objects as nodes in a directed graph[1] (column 3, lines 45-50,

Tang); and

storing path information[2] (column 5, lines 36-38,Tang) for a first object

corresponding to a first node (Fig. 9, item 201, Tang; wherein a first object

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[1] Examiner notes a directed graph is also known as a node network (column 1, lines 62-66, Tang).

corresponds to "message list"), where the path information comprises a

sequence of nodes (Fig.5, items 61 and 64; column 6, lines 29-43, Tang)[3]

through the directed graph between the first node (Fig. 9, item 201, Tang) and a

second node (Fig. 9, item 212, Tang), where the second node (Fig. 9, item 212,

Tang) is separated from the first node (Fig. 9, item 201, Tang) in the sequence of

nodes by at least a third node (Fig. 9, item 211, Tang).

Regarding Claim 2, Tang discloses a method further comprising:

accepting a query regarding the first node (column 9, lines 56-61, Tang);

locating the first object (columns 9-10, lines 66-67 and 1-2, respectively,

Tang); and

accessing the path information to respond to the query (column 10, lines

2-13, Tang).

Regarding Claim 3, Tang discloses a method wherein storing data objects

comprises:

storing each data object in a first column of a data table (Fig.8, item 84,

Tang); and

storing a relation (column 8, lines 54-59,Tang) of the first data object[4] to a

consecutive data object[5] in a second field of the data table (Fig. 8, Tang), where

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[2] Examiner notes the storing of path information corresponds to pointer tags, which point to elements of the nodes.
[3] Examiner notes the "list of nodes" corresponds to sequence of nodes.
[4] First data object corresponds to Recipient #1.

the consecutive data object is connected to the first data object in the directed

graph by a single edge (Fig. 9, items 204 and 205; column 10, lines 58-60,

Tang).

Regarding Claim 5, Tang discloses a method wherein storing path

information comprises storing a data string as the path information (column 11,

lines 15-16, Tang; wherein data strings correspond to the text being stored within

the pointer tags), where the data string includes at least the second node and the

third node (column 5, lines 64-67, Tang; wherein the second node corresponds

to nodes 50 and 51, and the third node corresponds to nodes 49 and 47).

Regarding Claim 6, Tang discloses a method comprising comparing the

data string (column 4, lines 29-31, Tang) to a query regarding the first node

(column 9, lines 56-61, Tang), in order to respond to the query (column 7, lines 1-

5, Tang).

Regarding Claim 7, Tang discloses a method wherein storing the data

string comprises:

determining a first sequence of nodes through the directed graph of which

the first node is a part (column 11, lines 1-12, Tang; wherein a first direct path

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[5] Consecutive data object corresponds to Facsimile.

consists of node 201(i.e. first node) corresponding to node 227, corresponding to node 229);

determining a first data string based on the first sequence of nodes (column 11, lines 12-14, Tang; wherein a first data string corresponds to node 230 "component ID");

determining a second sequence of nodes through the directed graph of which the first node is a part (columns 9 and 10, lines 66-67 and 1-13, Tang; wherein a second direct path consists of node 201(i.e. first node) corresponding to node 209, corresponding to node 210, corresponding to node 211);

determining a second data string based on the second sequence of nodes (column 10, lines 13-16, Tang; wherein a second data string corresponds to node 212 "ID data"); and

concatenating the first data string and the second data string for storing as the path information (column 12, lines 16-27, Tang).

Regarding Claim 9, Tang discloses a method wherein the directed graph includes a hierarchical, multi-leveled data structure (Fig. 4,Tang).

Regarding Claim 10, Tang discloses a method wherein storing path information comprises updating the path information to reflect changes in the directed graph (column 5, lines 60-63, Tang).

Regarding Claim 11, Tang discloses an apparatus comprising a storage medium having instructions stored thereon, the instructions comprising:

a first code segment for storing data objects within a table (Fig.8, Tang);

a second code segment for storing a relation of a first data object to a second data object in the table (column 8, lines 54-59,Tang), where the first data object and the second data object correspond to consecutive nodes on a directed graph (Fig. 9, items 204 and 205; column 10, lines 58-60, Tang); and

a third code segment for storing path information (column 5, lines 36-38,Tang) associated with the first data object in the table (column 5, lines 33-38, Tang), where the path information comprises a sequence of nodes within the directed graph (Fig.5, items 61 and 64; column 6, lines 29-43, Tang) that is between the first node (Fig. 9, item 201, Tang), the second node (Fig. 9, item 212, Tang), and a third node (Fig. 9, item 211, Tang).

Regarding Claim 12, Tang discloses an apparatus further comprising:

a fourth code segment for accepting a query about the first node (column 9, lines 56-61, Tang) and a possible relation (column 4, lines 26-34, Tang) of the first node (Fig. 9, item 201, Tang) to another node within the directed graph (Fig. 9, item 212, Tang); and

a fifth code segment for responding to the query based on the path information (column 10, lines 2-13, Tang).

Regarding Claim 13, Tang discloses an apparatus wherein the fifth code segment includes a sixth code segment for detecting the first data object within the table and comparing the path information (column 4, lines 29-31, Tang) to the query (column 9, lines 56-61, Tang).

Regarding Claim 15, Tang discloses an apparatus wherein the third code segment stores the path information as a data string (column 11, lines 15-16, Tang; wherein data strings correspond to the text being stored within the pointer tags) listing the second node and the third node (column 5, lines 64-67, Tang; wherein the second node corresponds to nodes 50 and 51, and the third node corresponds to nodes 49 and 47).

Regarding Claim 17, Tang discloses a system comprising:

means for accessing path information (column 10, lines 2-13, Tang) comprising a sequence of nodes through a directed graph (Fig.5, items 61 and 64; column 6, lines 29-43, Tang) between a first node (Fig. 9, item 201, Tang) and a plurality of other nodes (Fig. 9, items 202,203,204, Tang); and

means for responding to a query involving the first node, based on the path information (column 7, lines 1-5, Tang).

Regarding Claim 18, Tang discloses a system wherein the means for accessing path information comprises means for storing the path information

(column 5, lines 36-38,Tang) or a reference to the path information in a table

(Fig.8, item 84, Tang) containing a first data object corresponding to the first

node (Fig. 9, item 201, Tang; wherein a first node corresponds to "message list").

Regarding Claim 19, Tang discloses a system wherein the means for

responding to the query comprises means for directly locating the first data object

within the table (column 4, lines 29-31, Tang) in response to the query (column 7,

lines 1-5, Tang).

Regarding Claim 20, Tang discloses a system wherein the means for

responding to the query comprises means for performing a pattern match

between the query (column 9, lines 56-61, Tang) and a data string listing the

sequence of nodes the directed graph (Fig.5, items 61 and 64; column 6, lines

29-43, Tang).

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

**4.   Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable
over Tang (US Patent No. 5,454,102) as applied to claims 1-3,5-7,9-13,15, and 17-
20 above, and further in view of Schultz (US Patent No. 6,006,233).**

Regarding Claim 4, Tang discloses a method for storing path information
(column 5, lines 36-38,Tang). However, Tang does not explicitly disclose storing
the path information in a third field of the data table. On the other hand, Schultz
discloses storing the path information in a third field of the data table (column 9,
Table 5, Schultz). It would have been obvious to one of ordinary skill in the art at
the time of the invention to incorporate Schultz's teachings into the Tang system.
A skilled artisan would have been motivated to combine in order to permit the
user access in distinguishing between the different fields of the table. Tang and
Schultz are analogous art because they are from the same field of endeavor of
retrieving related data within a directed graph. As a result, this allows more clarity
into understanding how the different objects are associated and what course was
taken to retrieve the outcome.

Regarding Claim 14, the combination of Tang in view of Schultz discloses
an apparatus wherein the first data object ("Recipient #1", Tang), the second
data object ("Facsimile", Tang), and the path information (column 5, lines 36-38,
Tang) are stored in separate columns of a single row of the table (column 9,
Table 5, Schultz).

5.   **Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tang (US Patent No. 5,454,102) as applied to claims 1-3,5-7,9-13,15, and 17-20 above, and further in view of Andrei (US Patent No. 6,801,905).**

Regarding Claim 8, Tang discloses a method for storing path information (column 5, lines 36-38,Tang). However, Tang does not explicitly disclose transforming the relational information into a coded value. On the other hand, Andrei discloses transforming the relational information into a coded value (column 11, lines 33-39, Andrei). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Andrei's teachings into the Tang system. A skilled artisan would have been motivated to combine in order to improve the communication between the system and the hardware. Tang and Andrei are analogous art because they are from the same field of endeavor of optimizing queries. As a result, the transformation into code allows the system to more easily create, maintain, and adapt for use in other databases and computer systems.

Regarding Claim 16, the combination of Tang in view of Andrei discloses an apparatus wherein the third code segment stores the path information as a coded value (column 11, lines 33-39, Andrei) generated from information about the second and third node (column 5, lines 64-67, Tang; wherein the second node corresponds to nodes 50 and 51, and the third node corresponds to nodes

49 and 47) and their locations within the directed graph (column 4, lines 29-31,

Tang).

Response to Arguments

Applicant argues, Tang does not disclose storing path information, accessing

path information, and the newly added limitation of the path information including a

sequence of nodes through a directed graph between a plurality of nodes, including a

first node.

Examiner respectfully disagrees. As stated in the action above, Tang discloses at

column 5, lines 33-38, wherein the nodes contain pointer tags which point to the

respective data elements and the nodes store those tags. Pointer tags are variables that

hold the addresses of data objects. Therefore, the pointer tags within the nodes are the

storage for the path information. As shown in Fig.4, nodes 42 and 44, which must be

traveled in order to get to the destination nodes of 45 and 46, represent the path

information. Therefore, storing path information has been disclosed. Also, Tang

discloses at column 10, lines 2-16, wherein the "delivery node", "address node", and

"recipient node" queries a message and encounters the data. The act of "encountering

the data" corresponds to accessing path information. To further elaborate, Tang

discloses at column 7, lines 1-5, accessing the data elements using the pointer tags

supplied from the nodes. Lastly, Tang discloses at Fig.5, items 61 and 64 and column 6,

lines 29-43, wherein the root node writes out the list of nodes contained by the root

node and the list nodes writes out the list of nodes that it contains. The "list of nodes

contained" corresponds to the path information. In addition, Fig.5 and Fig.9 shows a

node network with a plurality of nodes, including a first node, and the path information

makes up a "sequence of nodes". As a result, the newly added limitation of the path

information including a sequence of nodes through a directed graph between a plurality

of nodes, including a first nodes has been disclosed.

Conclusion

6.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Points of Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chelcie Daye whose telephone number is 571-272-3891. The examiner can normally be reached on M-F, 7:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on 571-272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chelcie Daye
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May 18, 2006

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